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ABSTRACT

This document defines the specific standards and general guidelines which the U.S. Department of Education (ED) will use to make information available on the World Wide Web (WWW). The purpose of providing such guidance is to ensure high quality and consistent content, organization, and presentation of information on ED WWW servers, in order to help users find pertinent information to answer their education questions. The eight sections consist of: (1) an overview of the document itself; (2) selected definitions; (3) ED-controlled content, ED-sponsored content, and external content of servers; (4) discussion of the design of the main ED WWW server, as well as home page links, dead links, and types of materials that should have restricted access; (5) style/markup aspects; (6) examination of ED-specific issues, including coordination of ED WWW pages with the Office of Educational Research and Improvement; public release; compliance with standards; and quality assurance; (7) additional points for consideration; and (8) references for other federal agency standards; HTML style guides and standards; accessibility to users with disablities; and WWW security. Contains 17 references. (AEF)

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U.S. Department of Education
World Wide Web
Server Standards and Guidelines

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Contents

I. Background 1
II. Definitions 3
III. Content 5
A. ED-controlled Content 5
B. ED-sponsored Content 9
C. External Content 10
IV. Navigation/Organization 11
V. Style/Markup 13
VI. ED-specific Issues 21
VII. Additional Points 23
VIII. References 25
A. Other Federal Agency Standards 25
B. HTML Style Guides and Standards 25
C. Accessibility to Users with Disabilities 26
D. WWW Security 26

I. Background

This document defines the specific standards and general guidelines which the U.S. Department of Education (ED) will use to make information available on the World Wide Web (WWW).

Why This Document Is Needed: The World Wide Web and related Internet technologies hold great potential for providing information to the public more quickly, extensively, and efficiently than has ever before been possible. The remarkable growth in the number of WWW servers, the amount of material they contain, and their use by the public make the Web an increasingly attractive and effective dissemination channel for Federal agencies.

This same rapid growth also intensifies the need to establish standards and guidelines to help users find, retrieve, and use the information they need. If the growing number of Department-sponsored WWW servers is to coalesce and become a true "online library" for education, we need to learn some of the lessons traditional publishers and libraries have learned. From publishers, we need to learn the importance of consistent presentation and visual clues (i.e., look-and-feel, human factors). From libraries, we need to learn the importance of the universal uniform cataloging system and other resource sharing tools.

The Federal government is making a major commitment to electronic networking as a primary means of providing information and services to customers. The WWW is a key enabling technology for the vision of "one-stop shopping." If the dozens of Department-sponsored WWW servers adhere to a reasonable set of WWW standards and guidelines for the organization and presentation of information, customers will be able to enter the system at any point and tap not only the specific server they first contact but also the full resources of the entire interlinked system of which that server is a member component.

What This Document Is and Is Not: This document provides guidance to ensure high quality and consistent content, organization, and presentation of information on ED WWW servers, in order to help users find pertinent information to answer their education questions. At the same time, this document tries to avoid placing unnecessary constraints on the design and operation of individual servers and services. Every organization and program faces the special circumstances of its particular mission, goals, content, customers, technical capabilities, and organizational culture.

This document is not a training document. It is not a complete style guide for composing HTML (hypertext markup language). Nor does it provide a complete checklist of procedures for project leaders to follow to publish information on ED WWW servers, although certain procedural issues are addressed.

Shelf Life: The WWW is evolving quickly. If this document is more than six months old, it should have been updated by now.

Credit: This document owes its structure and much of its content to the *DTIC WWW Server Standards and Guidelines—Final Draft (4/24)* developed by Bill Trefzger of the Defense Technical Information Center (DTIC).

II. Definitions

Document

A document is a set of information designed and presented as an individual entity. A publication is a good example of a document. It may contain logical subunits such as parts, sections, or chapters; but it is typically created, updated, and presented as a single unit. The WWW presentation of a document may consist of one or many WWW pages.

Document Collection

A document collection is a set of documents that are logically related, usually by their content, target audience, or origin (e.g., a collection of studies produced by a program, project, or organization).

Page

A page, in WWW parlance, is an individual computer file which can be addressed by a hypertext link. Documents and collections are constructed of linked pages.

Although most pages are static files, some are not. HTML forms, Common Gateway Interface (CGI) scripts, and other mechanisms may be used to create pages which are front-ends to databases or other types of information services. Such services may dynamically create new pages containing query responses or customized forms in response to user input.

Home Page

A home page is the entry point to a WWW server or a collection. It is the first page of information received by a visitor. Although the term "home page" is commonly used as a synonym for "WWW Server" or "document collection," in this document the terms are not equivalent.

WWW Server

A WWW Server is a computer which provides access to one or more collections of documents using World Wide Web formats and protocols. Each WWW Server has a main entry point or home page, although numerous files or pages are usually directly addressable.

Webmaster

Each WWW server has a Webmaster—an individual with primary responsibility for the server. By convention, each WWW server maintains

a Webmaster email address (e.g., webmaster@www.ed.gov) to which suggestions and inquiries about the site may be directed.

ED-controlled, ED-sponsored, and external content

Information on WWW servers operated by or directly representing Department offices is considered to be **"ED-controlled."** Information on WWW servers operated by or directly representing organizations or individuals under Department funding is considered to be **"ED-sponsored."**

To clarify the distinction, a WWW server operated by a contractor on behalf of a Department office is considered "ED-controlled" because to the public the server represents the voice of the Department, not the contractor. In contrast, a WWW server operated by a contractor as part of a clearinghouse or technical assistance contract from the Department would be considered "ED-sponsored" because the server is presented to the public primarily as the contractor's and only secondarily as the Department's.

All other WWW information is considered to be "**external**."

III. Content

III.A. ED-controlled Content

Statement of Purpose

The content of all pages on Department of Education WWW servers shall be related to the function and mission of the organization. Each organization, program, or project home page shall include, or link to, a specific statement describing the purpose and content of the collection. This statement should be considered the "collection policy" for the organization, program, project's WWW area. It can be used as a measure of whether a document or link should be included.

Approvals

The principal office within which a given organization, program, or project falls shall designate an individual who shall be responsible for reviewing and approving all pages in that organization's or program's WWW collection.

WWW documents which will be made available to the public and which contain material not previously approved must be cleared before release if there are policy implications. WWW documents whose content matches or is a pure subset of a printed publication do not require additional Departmental clearance. However, electronic versions of publications shall not be released to the public before the printed version has completed the clearance process.

Responsible Party/Contact

Every document (or document collection) will have an e-mail address, or a link to an e-mail form, which can be used to contact a responsible party regarding the content of the page(s). The e-mail address will not necessarily be that of an ED employee and may be that of the Webmaster for the WWW server on which the document resides if no content expert can be identified.

Organizations, programs, or projects are encouraged to establish generic email addresses for their public points of contact instead of using personal addresses (e.g., library@ed.gov rather than john_doe@ed.gov).

Accuracy

Complete accuracy for all online information is an important goal. However, the Department's current processes for information production and publishing do not always facilitate efficient production of electronic versions of documents suitable for online dissemination. In some cases, the need to make information available quickly or a lack of resources may not permit the extensive editing and proofreading necessary to ensure total, character-for-character correspondence between an electronic document and its printed counterpart. In such cases, the order of precedence for quality assurance efforts will be: (1) to ensure the accuracy of information on which users may base important decisions (e.g., grant application deadlines, policy guidance, etc.); (2) to avoid inaccuracies which compromise meaning (e.g., missing text, misaligned table cells, etc.); and (3) to fix trivial and cosmetic flaws (e.g., unitalicized titles, missing em-dashes, etc.). It is anticipated that technology advances and re-engineering of the Department's publishing processes in the near future will make total accuracy more attainable.

HTML does not precisely mimic the printed page. The formatting adjustments which are required to present information in HTML are not considered to compromise accuracy if they faithfully convey the information in a document.

Before any HTML document is made publicly available, spelling and syntax should be checked and links should be verified. Syntax can be checked using an HTML validation tool such as the *WebTechs HTML Validation Service* (http://www.webtechs.com/html-val-svc/). A number of spell-checkers exist on the Internet including *WebSter's Dictionary* (http://www.eece.ksu.edu/~spectre/WebSter/spell.html).

Timeliness/Currency

Effective customer service and the credibility of ED's public access Internet sites depend on the information's timeliness and currency. Information, particularly time-sensitive information such as grant announcements and press releases, must be posted as promptly as possible. Out-of-date information must be removed or updated promptly.

When the information in an online version of a publication becomes outdated, a dilemma arises: whether to update the information or remain faithful to the printed version. In some cases, the question is moot because

the resources or expertise to update the information are not available. The information should be updated if (1) the document is represented to users as a current resource rather than an historical artifact (e.g., the *Teacher's Guide to the U.S. Department of Education*; not *A Nation at Risk*); and (2) the outdated information is factual and easily updated in the document without distorting other content (e.g., new phone numbers or state contacts; not new survey statistics affecting tables throughout the *Digest of Education Statistics*). When a publication is modified, its title page or home page should include or link to a specific statement explaining and dating the modifications.

The party responsible for the document or collection will determine whether to retain an electronic version corresponding to the outdated print version.

Embargo/Release

Information release must comply with any embargoes. Whenever possible, electronic release should be coordinated with release of printed publications so that press releases and other publicity can mention electronic availability and include the Uniform Resource Locator (URL).

Organizational Home Pages

Each ED Principal Office shall maintain a home page and collection describing the organization and its activities. The organizational home page shall include a pointer to the ED home page (http://www.ed.gov/) which is maintained by the Office of Educational Research and Improvement (OERI). The main ED WWW server will link to each Principal Office home page, which in turn will link to any home pages which may exist for its component organizational units and the programs and projects it administers.

Organizations shall retain ownership of and responsibility for their information content. However, they shall use the main ED WWW server or one of the shared servers operated by the Information Resources Group (IRG) to host their WWW materials. Department policy is for ED-controlled servers other than the main ED WWW server to be supported by IRG. Exceptions require IRG approval.

Program and Project Home Pages

Program and project home pages and collections are optional but highly

recommended. If created, they shall link to the sponsoring organization's home page, the program index maintained on the main ED WWW server, and any appropriate Departmental topical forums.

Programs and projects shall use the main ED WWW server or one of the shared servers operated by IRG to host their WWW materials.

Personal Home Pages

Personal home pages are not supported on the main ED WWW server or IRG's shared servers.

Government Information Locator Service (GILS) Compliance

Information sources and products on ED WWW servers will, when appropriate, have GILS records created for them, so that the source or product may be identified using the GILS services to be provided by ED and others. Contact IRG for specific guidance on GILS.

III.B. ED-sponsored Content

Statement of Purpose

Information on WWW servers operated under Department funding shall be related to the purpose of the award under which the project is funded. The Department of Education shall be identified prominently and a link shall be provided to the sponsoring office's or program's home page if available. In the case of organizational servers where ED-sponsored information co-resides with other information, ED-sponsored information shall be clearly identified and distinguished from non ED-funded information.

Approvals

The ED project monitor shall designate an individual who shall be responsible for reviewing and approving all pages.

Responsible Party

See III.A.

Accuracy

See III.A.

Timeliness/Currency

See III.A.

Government Information Locator Service (GILS) Compliance

See III.A.

III.C. External Content

Approval

The decision to include a link to an external source should be based on the statement describing the purpose of the collection (see III.A.).

Context

In many instances, it may be necessary or appropriate to place external links in context for the user by including statements explaining the purpose of the link and disclaiming responsibility for or control over its content. It is important to avoid giving a user the impression that ED is endorsing a commercial product. It is also important to avoid giving the impression that ED is linking to frivolous (or worse) sites. Care should be taken when linking to external sites to ascertain that they do not themselves link to questionable or objectionable sites. Users cannot always easily tell when they are leaving ED "webspace" via an external link.

All external links will be clearly identified as such.

IV. Navigation/Organization

An important goal for the Department's collective World Wide Web services is to offer each user full access to the entire expanse of the distributed collection, regardless of the point at which the user enters the system. Reaching the goal of providing the convenience of "one-stop shopping" in a widely distributed system will require that each server sponsored by the Department, in addition to serving its own particular constituency, must provide links to dozens of other Department-sponsored servers.

In the near future, Internet technologies are expected to enable cross-server indexing and searching powerful enough to let users find information of interest across hundreds of educational WWW servers. For now, reciprocal links are required between each ED-controlled or ED-sponsored WWW server and the main ED WWW server at http://www.ed.gov/.

The main ED WWW server is designed to:

- include links to each Principal Office and ED program
- accommodate cross-links among organizations, programs, and projects
- highlight the Secretary's initiatives
- provide a comprehensive catalog of the Department's publications and products
- host a collection of links to ED-sponsored Internet sites and external education- and library-related resources
- sponsor topical forums consisting of discussion groups and collections of documents and resources on important educational subjects
- help users identify educational resources and services available to them by subject, role (teacher, parent, student, etc.) or geographical location (state or region)

Organizational, program, project, and ED-sponsored WWW materials must be coordinated with the main ED WWW server in any of the above areas that apply in order to ensure that users who access the main ED WWW server gain access to the complete range of ED's information and services.

Home Page Links

Documents should be designed to minimize users' reliance on the navigational aids in WWW clients (e.g., back and forward buttons, history lists). The back button, particularly, tends to retrace a path through every

page the user has visited rather than logically backing out of a collection.

There should be explicit links on each page within a document or collection back to the home page for that document or collection. The home page for each document or collection should in turn include an explicit link back to the sponsoring organization or program. Each organization and program home page should include an explicit link back to the ED home page.

Dead Links

Dead links inevitably occur on WWW servers as pages are modified, moved, or deleted over time. However, dead links can quickly damage a WWW server's credibility. The Webmaster for each server and the responsible party for each organization, program, or project will be jointly responsible for monitoring and maintaining their collections. They shall correct or remove dead links as soon as possible. External links shall be monitored using automated dead link detectors.

When changing URLs on ED servers, coordination may be required with external servers which point to those URLs. The technology to facilitate such coordination is not yet mature but is emerging.

Restricted Access

Sensitive, confidential, or privacy information shall not be placed in publicly available directories. In some instances, there may be a need to place documents and collections that are not officially public (i.e., discussion drafts, prototypes, collections which are in development, etc.) in a non-private directory for access by a geographically distributed workgroup, test group, or team. The sponsoring organization is responsible for determining whether to have the Webmaster password-protect the materials to prevent access by unauthorized individuals (password protection secures the material but also tends to reduce participation).

Documents and collections that are not officially public will not be linked to publicly accessible documents or placed in publicly available directories without an explicit warning to users and information on the access restrictions. It may be necessary to coordinate with the Webmaster to explicitly exclude restricted access documents from site-wide full-text indexes.

V. Style/Markup

Titles

Every page shall have a title. The title will be as short as possible but fully informative and specific (e.g., "FY 1996 ED Budget" is preferable to "Budget"). Although the title is often overlooked because it does not appear in the body of the document, it is important because it is frequently used to identify the document on hotlists, search result sets, and site indexes.

Headers

Every page will have a top-level <H1> header near the top of the first screen, except that an <H2> header may be used for continuation pages when a chapter or section is subdivided. The header should not exceed 1-2 lines of text. Lower-level headers (e.g., <H2>, <H3>, etc.) may be used if appropriate to the document. Header markup will not be used to emphasize entire paragraphs.

Documents which are divided into multiple pages will include the document title and publication date in italics above the top-level header, to help identify the document to users who may arrive at the page without knowing its context, (e.g., the result of a full-text search).

Standard Footer

Every document will contain the following information in a standard footer, separated from the body of the page by a horizontal rule: last update date, e-mail address or initials of responsible party with mailto: link, and link to an appropriate home page (for the document, collection, project, program, organization, or Department).

Pages which make use of the gopher-on-the-fly technique to serve Gopher users ASCII documents dynamically converted from HTML shall include the text "
-###-<HR>" above the footer (and above any navigation buttons; see below).

Standard Icons

Wherever an icon is used for the main ED home page, it shall be the standard icon EDhome.gif. This text string/URL should be used to display it (with a link) for files on the main ED WWW server:

```
<A HREF="/index.html">
<IMG SRC="/icons/EDhome.gif"
ALT="[ Go to U.S. Department of Education WWW Home Page ]"
WIDTH=39 HEIGHT=33></A>
```

or, for files on other servers:

```
<A HREF="http:///www.ed.gov/">
<IMG SRC="http://www.ed.gov/icons/EDhome.gif"
ALT="[ Go to U.S. Department of Education WWW Home Page ]"
WIDTH=39 HEIGHT=33></A>
```

See the http://www.ed.gov/icons/ directory for additional general purpose icons, including navigational buttons and various bullets and horizontal rules. Pages on the main ED WWW server shall use the standard icons for navigational buttons through standard references:

Icon	Use	Location	Width	Height
	Previous: goes to top of previous logical page	/icons/prev.gif	31	32
	Up: returns to higher level page, usually a table of contents or menu list	/icons/up.gif	31	32
	Next: goes to top of next logical page	/icons/next.gif	31	32
	Top of page: goes to top of current page	/icons/top.gif	31	22
	ED Home: goes to ED home page	/icons/EDhome.gif	39	33

The standard ED seal (http://www.ed.gov/icons/ed.gif width=176 height=177) shall be used whenever possible.

A smaller version (http://www.ed.gov/icons/sealbullet.gif height=30 width=30) is also available. If a different size or color is needed, it shall be included in the standard icon directory for all to use.

Offices and programs are encouraged to develop graphic banners and icons to help give a graphical identity and consistent look-and-feel to their pages, within the guidelines defined in this document for sensible and economical use of graphics.

File Formats

The choice of file formats used should be based on the following considerations: (1) the intended use of the material by the target audience; (2) the accessibility of the format to the target audience; and (3) the level of effort required to convert the material to the format.

In the interest of making information readily available to as wide an audience as possible, ED WWW servers shall avoid making information available only in proprietary file formats (e.g., WordPerfect, Microsoft Word, PowerPoint, SAS, Adobe Acrobat Portable Document Format, etc.), except in cases where the target audience commonly has access to such formats. Links to files in proprietary or unusual formats will be explicitly noted.

Material intended to be viewed, read, or browsed online shall be prepared in HTML format (for text and tables) and GIF (for graphics). JPEG format may be used instead of GIF for photographic material where there is a need to preserve a large number of colors. In such cases, JPEG produces smaller files with minor loss of image precision.

Portable document formats such as Adobe Acrobat PDF should not be used as the primary format unless converting the material to HTML is not

feasible. Although it is easier in many instances to create PDF than HTML, there are drawbacks: the contents of PDF files are not included in site-wide full-text search indexes, PDF viewers are not embedded in most Web browsers, and PDF viewers require more powerful hardware for online viewing than a Web browser alone.

Material intended to be downloaded for offline print or display shall be prepared in one of the following formats, which are listed in descending order of preference:

1) HTML and GIF or JPEG — Same as material for online viewing.
2) Adobe Acrobat (.PDF), Envoy (.EVY), or Common Ground Digital Paper (.DP) — Include link to downloadable free viewer.
3) Postscript (.PS) — Postscript produces excellent print quality but cannot be displayed on screen by most users and cannot be printed by many users with low-end printers.
4) Microsoft Rich Text Format (.RTF) — RTF is easily created from most word processors and is more widely usable than native word processor formats such as Microsoft Word or WordPerfect. However, its reproduction of fonts and page layout can vary depending on the user's font set.
5) Proprietary formats (e.g., WordPerfect, Microsoft Word, Excel, PowerPoint, Freelance, etc.) should only be used if: (a) conversion to one of the above formats is not feasible; (b) the intended audience is known to have ready access to software which can handle the proprietary format; or (c) the intended use is data analysis or manipulation (see below). If use of a proprietary format is unavoidable, use an earlier, more widely available version if possible (e.g., WordPerfect 5.1, not 6.1).

Material intended to be downloaded by the user for offline analysis or manipulation shall be prepared in one of the following formats, which are listed in descending order of preference:

1) Raw data files:
   a) comma separated values, text in quotes
   b) column formatted (mainframe data)
   c) space delimited (purely numerical data)
2) Proprietary formats (SAS, SPSS, etc.)

Data files shall be accompanied with adequate documentation of the file content and structure in a widely usable format such as ASCII or PDF. Documentation for executable programs shall include instructions for installation and use, as well as specifications for the platform needed to run the package (i.e., memory, disk space, operating system, etc.).

If the material to be downloaded is large (i.e., larger than 100K), it should be compressed in ZIP format and accompanied by an uncompressed ASCII file which describes the contents of the compressed file and provides instructions for uncompressing it.

Self-extracting archive files shall not be used unless the contents of the package are only usable on one type of computing platform. Self-extracting program code only runs on one type of computing platform (e.g., IBM PC) and makes the contents of the self-extracting archive inaccessible to users of other types of machine (e.g., Mac, UNIX).

Material in formats other than HTML shall be linked to an HTML page which describes the material in such a way that users of site-wide full-text search facilities can find material of interest.

Large or Complex Documents

Large or complex documents intended for online viewing, typically those larger than 10 screens, should be divided into multiple, smaller files. If possible, files should be divided along logical break points such as chapters or sections. For publications, a separate file should be created for title page information. The entry point for such documents should be a table of contents page which lists and includes links to the title page, each chapter/section file, and in most cases a compressed file containing the entire document. When a document consists of more than ten files, a compressed file in ZIP format should be made available to allow users to easily download the whole document. Also included should be a link to a standard directory containing zip utility software and instructions for various computer platforms. The standard link is <A HREF="gopher://gopher.ed.gov/11/info/utilities/">Zip Utility Software.</A>.

To assist users in navigating sectioned documents, each page should include standard navigation buttons at the bottom with links to the table of contents and previous and next section (see example below). The first and last

sections of the document should omit the previous and next link respectively.

```
<BR>-###-<HR>
<A HREF="prevfile.html">[Title of Previous Section]
  <IMG SRC="/icons/prev.gif" ALIGN=BOTTOM ALT=""
   WIDTH=31 HEIGHT=32></A>
<A HREF="index.html">
  <IMG SRC="/icons/up.gif" ALIGN=BOTTOM
  ALT="[Table of Contents]" WIDTH=31 HEIGHT=32></A>
<A HREF="nextfile.html">
  <IMG SRC="/icons/next.gif" ALIGN=BOTTOM ALT=""
   WIDTH=31 HEIGHT=32>[Title of Next Section]</A>
```

Links to Large Files

Links to files larger than 50 kilobytes will include an explicit note of the file size.

Uniform Resource Locators (URLs)

Relative URLs are to be used whenever possible, for both anchors and images, in order to make documents and collections portable. For example, a link from the file "index.html" to the file "chapter1.html", when both files reside on the WWW server "www.ed.gov" in the directory "/pubs/TeachersGuide/", should be expressed as
<A HREF="chapter1.html">, not as
<A HREF="http://www.ed.gov/pubs/TeachersGuide/chapter1.html">.

URL names should use simple, understandable words and be kept as short as possible without becoming cryptic. The intent is to use names which are easy to read, remember, and type. The index.html standard will be used wherever possible as the default entry point for a directory.

URL names should use lower case, except that upper case can be used to make long names more readable (e.g., /pubs/TeachersGuide/). Arbitrary use of upper case (e.g., picture.GIF, myFILE.html) is prohibited.

Images

Images will not be used for pure decoration. Images are appropriately used to help convey information or to create a consistent and recognizable "look and feel" for a collection.

Images will be as small as possible. As a general rule, images should be no wider than 480 pixels, in order to display on the typical Web browser's 500 pixel wide viewing window on a 640 by 480 monitor. Image file size can often be reduced significantly by reducing the color depth, especially for non-photographic material such as charts and graphs. Image resolution may often be reduced without compromising the information conveyed. Actual width and height should be specified for each image; many browsers can use the information to format and display documents faster.

Considerations for Users with Disabilities, Character-only, or Low-Bandwidth Access

Pages will be designed so that there is a text equivalent for all information contained in graphics. For example, an image map must be accompanied by text links which provide access to the complete set of options for users who cannot use the image maps because of disabilities, character-only browser limitations, or low-bandwidth connections. Page designers must put themselves in the place of a visually impaired user and design pages that make sense (e.g., use "*" instead of "Blue Star" as the Alt tag for a blue star used as a list bullet).

Pages will be tested using Lynx or another character-only browser.

Pages will be designed for efficient transfer over low-bandwidth connections, which are still prevalent in schools, homes, and libraries. Graphics will be no larger than necessary and may sacrifice color-depth or image resolution to reduce file size.

Consult the General Services Administration (GSA) guidelines on *Writing Accessible HTML Documents* (http://www.gsa.gov/coca/WWWcode.htm) for further explanation.

Client Feature Variations

Document authors should be aware of the variations in features available on different clients (Web browsers) and should author their documents accordingly. For example, before using <TABLE> markup, the author should be aware that Lynx does not support table markup and renders most tables as unreadable strings of text. Knowing that, the author may decide to use <PRE> markup, which is less powerful but permits Lynx users to view tables narrower than 80 columns.

In general, there is substantial variation among clients in their interpretation of the HTML standard for newer, more complex features such as forms. Clients also vary in how they render seemingly straightforward markup such as <CITE> and <BLOCKQUOTE>.

Client-specific Markup

Avoid using client-specific markup. WWW pages produced by ED must be usable by all major clients to ensure equitable access to the information. It is not acceptable to mark up a document in such a way as to enhance its elegance when viewed by one browser while degrading its usability under other browsers. For example, it is permissible to use the Netscape-specific <FONT SIZE> tag to enlarge the initial letters of paragraphs because it does not interfere with the display of the same document by another browser which does not recognize it. On the other hand, the <FONT SIZE> and other Netscape-specific HTML extensions can be used in other ways which make the document difficult to read using any browser other than Netscape. Such use is prohibited.

Tables

Tables, like images, can be an extremely effective way to present information. However, also like images, they can hamper access to information by visually impaired individuals or those with character-only browsers. <TABLE> markup should be used when it significantly enhances the effectiveness of information presentation. It should be accompanied if possible by an alternative presentation for those whose browsers or disabilities prevent them from using table markup.

An appropriate use of <TABLE> markup would be to present a statistical table, accompanied by a version of the same information as preformatted text (<PRE>) 80 or fewer characters in width. In some cases (e.g., the *Digest of Education Statistics* with its more than 400 tables, many of which are quite wide) it may not be feasible to prepare each table in two formats. The implementor must decide which format to prepare based on knowledge of the target audience.

An inappropriate use of <TABLE> markup would be to construct a fancy, multi-column menu in such a way that the menu is inscrutable to Lynx users.

VI. ED-specific Issues

Coordination

Implementors of WWW pages throughout ED should coordinate in advance with OERI, which maintains the main ED WWW server, to ensure proper linkage when a new organization, program, or document collection is made available or substantial changes are made to an existing collection. OERI contacts are:

Keith M. Stubbs
Resource Sharing and Cooperation Division
National Library of Education
555 New Jersey Avenue, NW Room 214c
Washington, DC 20208-5725
(202) 219-1803
fax: (202) 219-1817
kstubbs@inet.ed.gov

Judy C. Taylor
Resource Sharing and Cooperation Division
National Library of Education
555 New Jersey Avenue, NW Room 214a
Washington, DC 20208-5725
(202) 219-2266
fax: (202) 219-1817
jtaylor@inet.ed.gov

The main ED WWW server's "News" and "Picks of the Month" features can help publicize new servers, collections, or important documents.

Public Release

Implementors are responsible for documenting that information made available in publicly accessible directories is authorized for public release.

Compliance

The individual designated by the responsible principal office (see III.A. Approvals above) shall be responsible for compliance with these standards and for recommending changes or exceptions to items which conflict with the goals of their activities.

Quality Assurance

Project leaders shall be responsible for ensuring the quality and functionality of their HTML documents, forms, and related CGI programs. Each organization, program, or document collection will have one or more "Quality Testers," who will review all documents for quality and adherence to existing ED WWW Standards and Guidelines before the documents are made publicly available.

Departmental quality testers will spot-check collections regularly.

Procedures

A separate procedure manual will provide details on the specific steps to be taken to use the ED WWW server to publish electronic information.

VII. Additional Points

Reinventing the Wheel

Project implementors are encouraged to explore the Internet to identify sites which might have already invented the wheel. They are also encouraged, when they create processes and procedures, to consider whether to generalize them for use in other situations at ED in the future.

Project implementors should consult the main ED WWW server and its project staff for advice on Web design, implementation, and maintenance, as well as Web-related tools and techniques.

Security

Operation of a WWW server opens up numerous potential security issues which must be addressed. The Webmaster has primary responsibility for the server's security. But project implementors must be aware of security considerations, particularly in areas such as CGI script development where potential risks abound. See the security references cited below for additional information.

Usage Monitoring

Project leaders should review and analyze the usage reports generated by the server for their documents and collections, and use this information to improve their services or marketing. Current and historical usage statistics for the main ED WWW server are available at http://inet.ed.gov/~training/Stats/External.html.

The Web Evolves

Project leaders are reminded that the WWW environment is changing rapidly. The number of servers and users is skyrocketing. New software, both commercial and freeware, for browsing, authoring, converting, serving, and searching becomes available every week. Project leaders should from time to time evaluate the needs of their projects against the changing environment and make appropriate adjustments.

Continuous Improvement

Project leaders should take advantage of the "live" nature of WWW services and the steady stream of technical enhancements by continuously improving their services. While frivolous and arbitrary changes are distracting to users, improvements to services based on user feedback, new

ideas for organization, new HTML features, or newly available functionality will keep services fresh and give users a favorable impression of the Department's WWW commitment and expertise.

VIII. References

VIII.A. Other Federal Agency Standards

DTIC WWW Server Standards and Guidelines (Final Draft: 4/24/95)
Bill Trefzger, Defense Technical Information Center
[http://www.dtic.dla.mil/hovlane/standards.html]

Policy for Internet Information Dissemination Using the World Wide Web (Draft: 8/9/94)
Larry Brandt, NSF Directorate for Computer and Information Science and Engineering
[http://banjo/cise-nsf.gov/cise/CISEWebPolicy.html]

World Wide Web Home Page Guidelines
NSF/NCSA World Wide Web Federal Consortium (Draft)
[http://skydive.ncsa.uiuc.edu/consortium/guide/hmpggl.htm]

VIII.B. HTML Style Guides and Standards

Putting Information onto the Web
a collection of documents on authoring hypertext
[http://www.w3.org/hypertext/WWW/Provider/Overview.html#author]

NSF/NCSA World Wide Web Federal Consortium Training Materials Page
[http://skydive.ncsa.uiuc.edu/where/training.html]

Style Guide for Online Hypertext
Tim Berners-Lee, World Wide Web Consortium
[http://www.w3.org/hypertext/WWW/Provider/Style/Overview.html]

NCSA HTML Style Sheet
National Center for Supercomputing Applications
[http://www.ncsa.uiuc.edu/Pubs/StyleSheet/NCSAStyleSheet.html]

Guide to Writing HTML Documents
Dan LaLiberte, National Center for Supercomputing Applications
[http://union.ncsa.uiuc.edu/HyperNews/get/www/html/guides.html]

Composing Good HTML
Eric Tilton
[http://www.cs.cmu.edu/~tilt/cgh]

Introduction to HTML and URLs
Ian Graham, University of Toronto
[http://www.hprc.utoronto.ca/HTMLdocs/NewHTML/intro.html]

Yale C/AIM WWW Style Manual
Patrick J. Lynch, Yale Center for Advanced Instructional Media
[http://info.med.yale.edu/caim/StyleManual_Top.HTML]

Yahoo collection of WWW-related sites and documents
[http://www.yahoo.com/Computers_and_Internet/Internet/World_Wide_Web/]

Names and Addresses, URIs, URLs, URNs, URCs
a collection of documents about Uniform Resource Locators and other web addressing schemes
[http://www.w3.org/pub/WWW/Addressing/]

VIII.C. Accessibility to Users with Disabilities

Design of HTML Pages to Increase Their Accessibility to Users with Disabilities
Trace R&D Center, University of Wisconsin - Madison
[http://www.trace.wisc.edu/TEXT/GUIDELNS/HTMLGIDE/htmlgide.html]

Writing Accessible HTML Documents
Paul Fontaine, GSA Center for Information Technology Accommodation
[http://www.gsa.gov/coca/WWWcode.htm]

VIII.D. WWW Security

The World Wide Web Security FAQ
Lincoln D. Stein, Whitehead Institute for Biomedical Research
[http://www-genome.wi.mit.edu/WWW/faqs/www-security-faq.html]

Common Gateway Interface (CGI) Security
Paul Phillips
[http://www.primus.com/staff/paulp/cgi-security/]

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33